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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/941,686	08/30/2001	Takeshi Nagai	213442US2SRD	6197

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EXAMINER

VAN HANDEL, MICHAEL P

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/941,686	Applicant(s) NAGAI ET AL.	
	Examiner Michael Van Handel	Art Unit 2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 7-10, 13-16 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-10, 13-16 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This action is responsive to an Amendment filed 4/19/2006. Claims 1-4, 7-10, 13-16, 18 are pending. Claims 1-4, 7, 9, 10, 13, 15, 16, 18 are amended. Claims 5, 6, 11, 12, 17 are canceled.

Response to Arguments

1. Applicant's arguments filed 4/19/2006 with respect to claims 1, 3, 7, 9, 13, 15, and 18 have been fully considered but they are not persuasive.

Regarding claims 1, 7, and 13, the applicant argues that Balakrishnan does not disclose a delay unit configured to delay a transmission timing of each of the data packets by a delay time not less than a minimal transmission interval specific to the image transmitting apparatus. The examiner respectfully disagrees. Balakrishnan discloses a system that compresses or encodes video information for transmission on a communication network having a transmission bit-rate allocated, which may vary (col. 3, l. 59-64). Balakrishnan further discloses providing such a system without involving the decoder whenever the bit-rate of the channel being used to transmit video changes (col. 3, l. 65-67). This is achieved by making the logical size of the encoder buffer vary with the transmission bit-rate R and by maintaining a minimum fill level in the buffer whenever the transmission rate R is too high to assure that the decoder buffer will not overflow or underflow (col. 4, l. 7-15). When the available transmission rate changes to a R_{new} bit-rate, the minimum number of encoder buffer bits B_{min} is set equal to the shortfall of the decoder buffer

size. However, if the physical size of the encoder buffer is too small to implement the new logical buffer size required by the new proposed R_{new} , the buffer size controller informs the channel-rate controller that the proposed change in bit-rate is not acceptable, because the receiver decoder will not be able to keep up, resulting in frames being skipped. Thus, the physical size of the encoder buffer is a physical constraint on the transmission bit-rate (col. 12, l. 41-63). This meets the limitation of “a delay unit configured to delay a transmission timing of each of the data packets by a delay time not less than a minimal transmission interval specific to the image data transmitting apparatus” as claimed.

Regarding claims **3**, **9**, and **15**, the applicant argues that Goldhor et al. does not remedy the deficiencies of Balakrishnan. The examiner respectfully disagrees. Goldhor et al. teaches monitoring the amount of data stored in a buffer and changing priorities between a data fill rate and a data drain rate of a buffer in response to changing amounts of data stored therein (p. 4, l. 15-20; p. 5, l. 27-30; p. 6, l. 7-12, 30-32; & Fig. 2). For example, if the buffer fill level is getting low, the data drain is given less priority so that the buffer fill level can catch up. Balakrishnan discloses an encoder buffer, which must maintain a certain fill level in order to prevent the loss of frames at a decoder (col. 12, l. 51-52). Therefore, the examiner respectfully maintains that the changing of input and output priorities taught by Goldhor et al. does successfully remedy the deficiencies of Balakrishnan, and that it further be obvious to modify the system of Balakrishnan to shift priorities between the input of a buffer and the output of a buffer to maintain buffer fill levels, such as that taught by Goldhor et al. in order to provide substantially continuous playback of media (p. 2, l. 13-14).

Regarding claim **18**, the applicant argues that neither Goldhor et al. nor Cheney et al. teach a data storage size. The examiner respectfully disagrees. Cheney et al. discloses frame buffers for use in decoding encoded frames (col. 12, l. 63-67 & col. 13, l. 1). In decoding the frames, successive B frames must reuse a portion of the same area in memory (col. 14, l. 18-22). To accomplish this, Cheney et al. discloses the use of a Spill Buffer that is dynamically assigned to one of the three buffers, creating a logical buffer equal to the sum of the buffer size register and a spill size register (col. 14, l. 25-41). This meets the limitation of “a second controller configured to vary a data storage size of said storage according to a size of the encoded image data” as claimed.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims **1, 2, 4, 7, 8, 10, 13, 14, 16** are rejected under 35 U.S.C. 102(b) as being anticipated by Balakrishnan.

Referring to claims **1, 7, and 13**, Balakrishnan discloses an image data transmitting apparatus/method (system for encoding video information for transmission)(col. 3, l. 59-60) comprising:

- an encoder 48 configured to encode input image data (col. 3, l. 59-64 & Fig. 3); and

- a transmitting device configured to transmit encoded image data generated by the encoder, and including a packetizing unit configured to packetize the encoded image data to produce plural data packets (the examiner notes that the quantization size of the data is varied, the data is compressed, and the data is then transmitted in packets)(col. 5, l. 19-43, 58-67 & col. 6, l. 1-19, 35-51), and a delay unit 48, 54 configured to delay a transmission timing of each of the data packets (col. 12, l. 20-21) by a delay time not less than a minimal transmission interval specific to the image data transmitting apparatus to transmit the data packets at intervals corresponding to the delay time (the examiner notes that when the available transmission rate changes to a R_{new} bit-rate, the minimum number of encoder buffer bits B_{min} is set equal to the shortfall of the decoder buffer size. However, if the physical size of the encoder buffer is too small to implement the new logical buffer size required by the new proposed R_{new} , the buffer size controller informs the channel-rate controller that the proposed change in bit-rate is not acceptable, because the receiver decoder will not be able to keep up, resulting in frames being skipped. Thus, the physical size of the encoder buffer is a physical constraint on the transmission bit-rate.)(col. 12, l. 41-63).

Referring to claims **2**, **8**, and **14**, Balakrishnan discloses the image data transmitting apparatus/method according to claims 1, 7, and 13, respectively, wherein the delay unit 48, 54 controls the transmission timing based on a bandwidth of a network to be used for transmission of the data packets and a data size of the data packets (the examiner notes that the transmission rate is controlled by encoder 48 and communication network 54. In Balakrishnan, the network

buffer capacity is analogous to bandwidth and the quantization value is analogous to data size of data packets)(col. 12, l. 20-40 & Fig. 3).

Referring to claims **4**, **10**, and **16**, Balakrishnan discloses the image data transmitting apparatus/method according to claims 1, 7, and 13, respectively, wherein the transmitting device comprises a buffer to store the encoded data to be transmitted, and which further comprises:

- a control unit configured to vary a data storage size of the buffer according to an image size of the input image data (the examiner notes that the logical buffer size varies according to the transmission bit-rate, and the transmission bit-rate is a directly related to the quantization of the frame data)(col. 4, l. 7-23 & col. 9, l. 17-37).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims **3**, **9**, **15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Balakrishnan in view of Goldhor et al.

Referring to claims **3**, **9**, and **15**, Balakrishnan discloses the image data transmitting apparatus/method according to claims 1, 7, and 13, respectively, wherein the transmitting device comprises a buffer to store the encoded data 20 to be transmitted. Balakrishnan does not disclose:

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- A control unit configured to vary priorities of operations of the encoder and the transmitting device according to a volume of data stored in the buffer.

Goldhor et al. discloses changing priorities between filling a buffer 400 and playback of data within the buffer (p. 4, l. 15-20; p. 5, l. 27-30; p. 6, l. 7-12, 30-32; & Fig. 2). For example, if the buffer fill level is getting low, playback is given less priority so that the buffer fill level can catch up. It would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify Balakrishnan to shift priorities between the input of a buffer and the output of a buffer to maintain buffer fill levels such as that taught by Goldhor et al. in order to provide substantially continuous playback of media (p. 2, l. 13-14).

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goldhor et al. in view of Cheney et al.

Referring to claim 18, Goldhor et al. discloses an image data receiving apparatus (apparatus for preparing media for playback)(p. 2, l. 24-28), comprising:

- a receiver 400 configured to receive encoded image data (p. 3, l. 28);
- a storage 400 configured to store the encoded image data received by said receiver (p. 3, l. 29-30);
- a decoder 400 configured to decode the encoded image data stored in said storage (p. 5, l. 20-23); and
- a controller 700 configured to vary priorities of operations of said receiver and said decoder according to a volume of the image data stored in said storage (note that the input flow to buffer 400 and the output flow to playback are both changed and

playback is given less priority (slows down playback) if the buffer needs to fill up. In other words, if there are transmission delays to the buffer, the filling of that buffer gets priority over playback)(p. 4, l. 15-20; p. 5, l. 27-30; p. 6, l. 7-12, 30-32; & Fig. 2).

Goldhor et al. does not disclose means for varying a data storage size of a storing means according to a size of the encoded image data. Cheney et al. discloses an overflow buffer (Spill Buffer) that is dynamically assigned to a buffer in need of extra storage capacity (col. 14, l. 25-35). It would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify Goldhor et al. to include an overflow buffer such as that taught by Cheney et al. in order to reduce the required amount of DRAM in an MPEG-2 decoder (col. 4, l. 16-19).

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Van Handel whose telephone number is 571.272.5968. The examiner can normally be reached on Monday-Friday, 8:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Grant can be reached on 571.272.7294. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Note to Applicant

Art Units 2611, 2614 and 2617 have changed to 2623. Please make all future correspondence indicate the new designation 2623.

MVH

Michael Van Handel
Examiner
Art Unit 2623



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